Wind Power Challenge

- Project: Design a wind powered electric generator.

- Restrictions
  - The device must be small enough to transport to the competition site in a school vehicle. You must be able to bring it through a normal 3' door opening.
  - You will be given 5 minutes to assemble you device.
  - Your device will be hooked up to a monitoring setup, which will include a 10 Ω load, an ampmeter, and a voltmeter.
  - Safe operating procedures must be followed at all times.

- Challenge Parameters
  - You will be provided with a 20 inch box fan that will be turn on the highest setting.
  - The front of your device must be at least 20 inches away from the front of the fan.
  - You will have 10 minutes to adjust your device for maximum power output.
  - Your device will be capable of connecting to a monitoring setup, which will include a 10 Ω load, an ampmeter, and a voltmeter.
  - At the conclusion of the 10 minutes a qualifying competition reading will be taken and entered into an excel spreadsheet on the computer provided.
  - You will not be allowed to adjust, manipulate, or program the spreadsheet.
  - You may keep a paper copy of your data.
  - The winning team will produce the highest power reading.

Work = volts x coulombs = V x q
Coulombs = current x time = I x t

$$\text{Power (Watts)} = \text{Work} / \text{time} = \frac{V \times I \times t}{t} = V \times I$$

Box fan

Your device

$\longleftarrow$ 20" + $\longrightarrow$